CLAIMS

What is Claimed is:

1. A method of making a recyclable energetic composition for low temperature storage comprising:

mixing at least one binder compound having at least one pendant azido group component with at least one plasticizer component;

heating said binder(s) and said plasticizer(s) mixture until the mixture is homogeneous;

cooling said mixture to room temperature;

adding at least one diacetylene component to said mixture without the aid of a solvent to produce longer polymer chains on said binder(s);

adding at least one metal, metallic, non-metal fuel, oxidizer component(s) to said mixture at room temperature; and

adding at least one tri- or higher polyacetylene component without the aid of a solvent to produce a homogeneous solid, elastomeric composition which is formed by chemically reacting said azido groups of said polymer binder(s) by cyclo-addition of said triacetylene component(s) to form triazole linkages.

2. The method according to claim 1, further comprising adding at least one stabilizer component to said mixture and while heating said mixture.

3. The method according to claim 1, further comprising at least one stabilizer component dissolved in a volatile solvent, combining said stabilizer to said

plasticizer first before combining with said binder to prevent any decomposition of said plasticizer.

4. The method according to claim 1, wherein said diacetylene and said tri- or higher polyacetylene component are combined to the mixture while being heated.

5. The method according to claim 1, wherein said heating of said binder(s) and said plasticizer(s) mixture ranges from temperatures of about 100°F to about 130°F.

6. The method according to claim 1, further comprising adding other components to said energetic composition selected from the group comprising burn rate catalysts and modifiers, thermal, combustion and aging stabilizers, and opacifiers.

7. The method according to claim 1, wherein other solid propellant ingredients are added to the binder/plasticizer components including said oxidizer.

8. The energetic low temperature storage composition obtained by the process defined in claim 1.